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"THE COMPARATIVE EVALUATION OF VARIOUS ADDITIVES ON SETTING TIME AND COMPRESSIVE STRENGTH OF MTA PLUS - AN IN-VITRO STUDY."

by

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ABSTRACT

Background &Objectives: MTA being a near ideal retrograde filling material, has greatest disadvantage of longer setting time, which limits is use in certain clinical situation. A novel MTA, known as MTA Plus claims to have a finer particle size and is marketed with an additional anti washout gel .This study was undertaken to compare the setting time and compressive strength of MTA plus with various additives.

Methods and methodology: MTA plus powder was mixed with following additives GROUP A-5% $CaCl_2$ solution, GROUP B-10% $CaCl_2$ solution, GROUP C- Phosphate buffer saline solution , GROUP D- 80% Distilled water/20%propylene glycol, GROUP -E Saline ,GROUP F- Lidocaine HCl, GROUP G-15% Sodium Phosphate Monobasic, GROUP H -3% Sodium hypochlorite gel, GROUP I- Proprietary gel with MTA Plus in the ratio of 1:1 by weight. Setting time was evaluated using Vicat apparatus using brass mould with an internal diameter of 10 mm and height of 2 mm. Compressive strength was evaluated using an Instron machine using a split brass mould with an internal diameter of 4 mm and height of 6 mm.

Results: The results showed that 15% sodium hydrogen phosphate and MTA plus gel significantly decrease the setting time of MTA Plus. MTA Plus gel set cement gave highest value of compressive strength among all groups of additives studied.

Conclusion: Additives used in the given study had influence on physical property like setting time and mechanical property like compressive strength of MTA Plus.

Keywords: MTA Plus, anti washout gel, additives, setting time, compressive strength